



**THE SECRETARY OF DEFENSE**

**WASHINGTON, DC 20301-1000**

**DEC 15 1997**

**Honorable Strom Thurmond  
Chairman  
Committee on Armed Services  
United States Senate  
Washington, DC 20510**

**Dear Mr. Chairman:**

**In accordance with Section 924 of the National Defense Authorization Act for Fiscal Year 1997, and after consultation with the Chairman of the Joint Chiefs of Staff, I offer the following comments on the report of the National Defense Panel.**

**The National Defense Panel has performed a significant service to the Nation, both in recommending long-term changes to the Defense Department and in providing valuable advice to me during the recent Quadrennial Defense Review (QDR). The Panel is to be commended for its longer-term focus on the many security challenges that lie ahead. I strongly endorse its key recommendation to accelerate the transformation of U.S. military capabilities using savings generated by far-reaching business and acquisition reforms and additional base closures. This recommendation alone will greatly assist the Department of Defense (DoD) in charting a viable, fiscally responsible path to meeting the challenges of the early part of the next century.**

**As I have stated frequently in my dialogue with the Congress, and as events of recent months have repeatedly confirmed, the fundamental challenge facing the Defense Department, indeed the Nation, is to continue to meet the challenges of shaping the security environment and responding to the full range of crises in the near term while at the same time transforming our forces and capabilities to meet the demands of an uncertain future. The Panel correctly states that we do not have the luxury to choose between these sometimes competing demands. We must do both. In the Panel's words, "the United States needs to launch a transformation strategy now that will enable it to meet a range of security challenges in 2010 to 2020. Yet we must do so without taking undue risk in the interim."**

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**THE SECRETARY OF DEFENSE****WASHINGTON, DC 20301-1000****DEC 15 1997**

Honorable Ron Dellums  
Ranking Minority Member  
Committee on National Security  
United States House of Representatives  
Washington, DC 20510

Dear Ron:

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**THE SECRETARY OF DEFENSE****WASHINGTON, DC 20301-1000****DEC 15 1997**

Honorable Carl Levin  
Ranking Minority Member  
Committee on Armed Services  
United States Senate  
Washington, DC 20510

Dear Carl:

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Honorable Floyd Spence  
Chairman  
Committee on National Security  
United States House of Representatives  
Washington, DC 20510

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The extent and pace of our transformation efforts will depend critically on the availability of resources to invest in necessary research, development, testing, experimentation, and procurement. In this regard, I envision two inter-locking revolutions in military and business affairs. I am, therefore, particularly pleased with the Panel's support for the infrastructure reforms put forward in the Department's recently completed Defense Reform Initiative. Efficient business practices and reduced overhead not only free up resources, they also contribute directly to the transformation of the Department's support structure. As I have said elsewhere, the old philosophy was the big eat the small. Now, it's the fast eat the slow. My goal is for the Defense Department to be fast and lean. We must be competitive.

Our men and women remain the key to the Department's long-term success. They form the core of our defense capability, and they will continue to do so in the highly technological military of the future. I fully agree with the Panel that "under no circumstances should we reduce the quality or training of our people." Recruiting and retaining the best people our country has to offer, committing ourselves to their continual professional development, providing them with challenging and fulfilling careers, and ensuring they and their families can enjoy a high quality of life must remain our top priorities.

#### *Confronting Our Military Challenges, Today and Tomorrow*

The NDP offers a number of important recommendations concerning our future security challenges, our current strategy and force posture, and several of our ongoing defense programs. Several of the Panel's more important recommendations deserve comment.

The Panel provides a compelling depiction of our future security challenges, though I would emphasize that there is considerable uncertainty regarding the specific form these challenges might take. As the NDP report points out, the world of 2020 will likely pose a wide array of military challenges, some different from today, some quite familiar. Terrorism, information operations, nuclear, biological and chemical weapons, missile proliferation, and a host of transnational dangers may play a more prominent role, even posing direct threats to the U.S. homeland. These changes in the security environment will likely require concomitant changes in defense planning.

The most important step in addressing these challenges is for the United States to continue to play a leadership role in the international community. This in turn depends on close and cooperative relations with nations that share our values and goals and on our ability to influence those who can affect U.S. national well-being. Overseas presence and extensive engagement activities are

essential to our success in this area. We are working hard to strengthen and adapt our alliance relationships and develop new partnerships to meet new challenges. Enhancing interoperability with allied and coalition forces is another especially important component of these efforts.

I share the Panel's concern that our ability to rapidly and effectively project and sustain U.S. military power to distant regions may be challenged in the future. Our potential enemies will look to exploit our vulnerabilities through a range of asymmetric approaches that focus on denying us access to key regions and imposing large numbers of casualties early in the conflict. For our own part, it is important that we exploit our own warfighting advantages to the maximum extent possible. The Panel's insights will be useful as we pursue a dual-track approach: first, acting to protect facilities and infrastructure that enable our forces to deploy rapidly in crisis, to secure long-term agreements with our allies and partners that provide ready access to critical overseas infrastructure, airspace, and territorial waters, and to ensure our mobility and support forces are properly sized, trained, and equipped to perform their missions under what will likely be very different, very demanding future circumstances; and second, exploring technological developments and innovative operational concepts that would enable us to project our military power effectively even when confronted by an enemy that seeks to deny us critical access to a region.

I share the Panel's concern about the vulnerabilities of our space systems. Securing unimpeded access to space will be vital to all future military operations. As the Panel points out, the next twenty years will bring a dramatic expansion in space operations of all kinds, especially in the commercial sector. Military competitors, enabled by commercially available space systems, will obviously seek to reduce our current advantages in space. This challenge requires that we have adequate space control capabilities and better integration of our defense and intelligence community operations. I also agree that we must have a robust science and technology program, take best advantage of increasingly innovative commercial practices, and seek to secure private industry cooperation in addressing our security challenges in space.

I agree with the Panel that we need to better prepare ourselves to conduct operations in urban environments. As we have seen in Somalia, Haiti, and Bosnia, many of our efforts to achieve stability will bring our forces into urban areas. The same will hold true for larger-scale conflicts. The Services already are embarked upon efforts to improve our ability to operate in cities. We will look to build upon the Panel's recommendations as we focus upon this important challenge.

I believe the Panel incorrectly characterizes our approach to sizing military forces. Contrary to the Panel's characterization, we size our forces against a range of requirements, not only to fight and win major theater wars. In fact, for many elements of our forces, the requirements for major theater war are less demanding than for day-to-day peacetime activities. This has been demonstrated by recent experience and by analyses conducted during the QDR. In accordance with our strategy, our force structure is designed to meet three broad requirements: to provide adequate overseas presence and conduct a wide range of peacetime activities that help promote peace and stability in key regions; to conduct the full range of smaller-scale contingencies; and, in concert with allies, to deter and defeat large-scale, cross-border aggression in two distant theaters in overlapping time frames. The force structure outlined in the QDR provides the capabilities necessary to meet these requirements.

Given America's enduring global interests and today's serious security challenges on the Korean Peninsula and in Southwest Asia - challenges that are explicitly recognized by the Panel - I believe that maintaining a capability, in concert with our allies, to fight and win two major theater wars in overlapping time frames remains central to credibly deterring opportunism and aggression in these critical regions. Moreover, this level of capability helps ensure that the United States maintains sufficient military capabilities over the longer term to deter or defeat aggression by an adversary that proves to be more capable than current foes or under circumstances that prove to be more difficult than expected. Obviously, if threats of large-scale regional aggression were to grow or diminish significantly, it would be both prudent and appropriate for us to reevaluate our theater warfighting requirements, while at the same time ensuring that we retain the capabilities necessary to shape the international environment and respond across the full range of potential operations.

I believe the Panel recommends the correct path for pursuing a national missile defense system. I also agree that we should seek further reductions in nuclear forces, and we intend to do so upon ratification of the START II treaty.

The inconsistency the Panel perceives between the Services' visions and some of their procurement plans merits consideration. I have called for a measured modernization program that, together with streamlining the Department's business practices, will allow us immediately to exploit the most promising technologies. Information technologies will clearly be in the forefront of our activities. Guided by our joint and Service visions, I expect our acquisition plans to change over time as new operational concepts and supporting technologies mature.

The Panel also made a number of observations about specific Service programs, questioning, in some instances, projected procurement quantities. Such quantities are revalidated and revised many times in the life of a program and, hence, will be subject to periodic review. The Panel's recommendations to add or accelerate programs to enhance our transformation efforts, particularly those requiring additional resources to implement, will be considered in future departmental reviews.

### *Embarking on a Transformation Strategy*

I read with interest the Panel's proposals to accelerate our ongoing transformation activities to exploit the Revolution in Military Affairs (RMA). The Defense Department has recognized similar challenges and is already pursuing many of the actions identified in the report. (The attached annex identifies many of our ongoing transformation activities.) However, in the face of very real near-term demands to protect U.S. interests and within the constraints of available resources, we must pursue this transformation prudently. We have therefore developed a process encompassing a wide variety of joint and Service-unique activities to enable us to fundamentally transform our military capabilities.

*Joint Vision 2010* serves as the template for our transformation activities. It embraces information superiority and the technological advances that will transform traditional operational warfighting concepts into new concepts, via changes in weapons systems, doctrine, culture, and organization. It provides common direction for the Services, combatant commands, defense agencies and military-related businesses as they refine their own complementary visions and prepare to meet an uncertain and challenging future.

I welcome the Panel's emphasis on joint experimentation and am particularly interested in those recommendations that focus on infusing greater "jointness" into our ongoing efforts. Accordingly, I will explore its suggestion to create a joint battle lab for experimentation and joint exercises, to establish a joint national training center, a joint urban warfare center, and a joint concept development center, and to integrate existing service battle labs and facilities where appropriate.

Supporting our efforts to realize a vision of future warfare, the Joint Staff and the Services have created several battle labs to develop and assess new concepts and capabilities to carry out critical missions to meet current and future challenges. These battle labs serve as our test bed for exploring ways to ensure our 21<sup>st</sup> century forces are effective across the spectrum of future military



operations. In addition to these battle labs, we employ a variety of war games to improve our understanding of the security environment and the relative merits of alternative means of meeting critical military challenges over the longer-term.

Experimentation is another critical tool for gaining insights and refining new operational concepts. Warfighting experiments evaluate the impact of various concepts, doctrines, technologies, and organizations on the warfighting capability of joint and combined forces. We also employ larger-scale Advanced Warfighting Experiments (AWEs) to further explore emerging operational concepts and new technologies.

We also have funded an aggressive science and technology (S&T) program to ensure that our future forces have the competitive combat edge provided by superior technology. Four recent publications - the *Defense Science and Technology Strategy*, its supporting *Basic Research Plan*, the *Defense Technology Area Plan*, and the *Joint Warfighting Science and Technology Plan (JWSTP)* - lay out our S&T vision, strategic plan, and objectives. The JWSTP takes a joint perspective, looking across the Services and defense agencies to ensure that our S&T programs address priority future joint warfighting capabilities.

In an effort to link new operational concepts with new technologies, advanced concept technology demonstrations (ACTDs) are aimed at rapidly fielding new systems to evaluate their military utility - generally within two to four years. The ACTD is our approach to capturing and harnessing technology and innovation rapidly for military use at a reduced cost. ACTDs are designed to foster an alliance between the technologists and the joint warfighters, eliminating barriers and improving the management of these critical efforts.

Building upon the many Department-wide activities described above, I plan to explore the Panel's recommendations to aggressively implement a transformation strategy. Toward this end, I have asked the Deputy Secretary of Defense to chair an RMA oversight council within the context of the Defense Resources Board to review the Department's current and planned transformation activities, recommend areas that could benefit from greater "jointness," and investigate whether changes in funding or activities are warranted. Our common goal is to better position the Defense Department to ultimately field the fundamentally different forces we will need for the future.

### *Reorganizing for Future Military Operations*

A successful transformation of the Defense Department will necessarily involve organizational changes. The National Defense Panel made several useful

recommendations for areas in which the Department can alter its structure to better meet the challenges of the future through: the Unified Command Plan (UCP), new uses for the Guard and Reserve, and changes within the broader interagency process.

The NDP recommended maintaining the current number of combatant commands but suggested that the Department make adjustments in the responsibilities of many and changes in the missions, and hence names, of some. I find these observations to be timely and insightful. As the means by which the missions, responsibilities, and force structure of each combatant command are assigned, the UCP is a cornerstone of the CINCs' ability to meet the defense strategy's fundamental challenge. It is therefore imperative that we thoroughly review and modify the UCP as we transform our forces for the future. It is also essential that we modify the UCP only after deliberate analysis. Changes in responsibilities should come at a rate that can be implemented by the CINCs without an undue increase in risk in the transitional areas of responsibility.

The Chairman of the Joint Chiefs of Staff recently completed a biennial review of the UCP as required by Title 10 and Section 905 of the Defense Authorization Act for Fiscal Year 1997, which directed a review of the impact of the QDR on the UCP. This review was an extensive effort that involved the Joint Staff, CINCs, and Services. Several proposals similar to the Panel's recommendations were reviewed in this cycle. Some, including assignment of the newly independent states, strengthening the mission of SPACECOM, and further clarification of ACOM's mission, were recommended for inclusion this year (UCP 97). Since the Panel's full range of UCP recommendations merit thorough analysis, I will ask the Chairman of the Joint Chiefs of Staff to include them for consideration in the UCP review cycle that begins in January 1998 and would look to act on any particularly promising ideas expeditiously.

The Department must approach a transformation strategy from a Total Force perspective. The National Defense Panel correctly states that to achieve transformation, the Active and Reserve Components must work together in an atmosphere of mutual trust. Indeed, the Panel's specific recommendations on the Reserve Components greatly contribute to the national discussion of how best to evolve the Total Force and are consistent with the Department's current efforts to refine the role of our Guard and Reserve components. The Army, in particular, is currently assessing more than 30 initiatives to improve active-reserve force integration. The conversion of Army National Guard combat structure to critically needed combat support and combat service support structure is underway. Additionally, the Army will begin to assess integrated AC-RC divisions by fielding two such divisions in Fiscal Year 1999. Other proposals include increasing reserve force utilization in support of rotational

operational missions, developing multi-component units, and addressing the growing threat to the U.S. homeland. The NDP's recommendations will be fully considered as the Department continues to shape the Total Force for the future.

The Panel rightly points out that the future security environment will include threats to the U.S. homeland, and I agree wholeheartedly that we must examine the role of homeland defense in our overall defense strategy. I look forward to exploring the Panel's recommendations on new roles for our National Guard and Reserve forces in this area. Recent legislation provides the National Guard with \$10 million to develop its domestic chemical/biological counter-terrorism mission. In addition, the Under Secretary of the Army directed an active-reserve Tiger Team to develop a plan for integrating Reserve Components in DoD's response to domestic nuclear, biological, and chemical terrorist attacks. The Tiger Team will report this month to the Deputy Secretary of Defense on its findings. The Department is also leading the implementation of the Domestic Terrorism Preparedness Program, which trains the local trainers and exercises local first responders, including firemen, law enforcement officials, and medical personnel. The program reached 27 cities this year and will cover 22 more next year. Over the next few years, we plan to provide "train the trainer" assistance for first responders in America's 120 largest cities and will provide training to all cities via the Internet, video, and CD ROM. As we consider these options, we have to balance capabilities, tempo, and missions. In considering these recommendations, however, we must bear in mind that the defense of the U.S. homeland involves many agencies of government.

The evolving security environment also has significant implications for how the national security apparatus operates. The distinctions between foreign and domestic policies are less pronounced than in the past. As the Panel points out, the United States faces a panoply of threats that require smooth interaction among diplomatic, military, law-enforcement, and consequence management organizations. I believe our national security apparatus must be flexible and responsive to meet the kinds of challenges that this Nation will face in the foreseeable future. Presidential Decision Directive 56 on Managing Complex Contingency Operations takes a major step in that direction by providing an approach to effectively integrate the operations of all U.S. government actors in a crisis situation. I will recommend to the President that the broader national security community review the Panel's proposals in this area.

#### *Streamlining Support Infrastructure*

The National Defense Panel rightly focused on the need for additional resources to fund the transformation process. Change does not come cheaply,

and the Department must work together with Congress to ensure that U.S. forces are not held back by a burdensome infrastructure and outdated business and acquisition practices. The recently completed Defense Reform Initiative, endorsed by the NDP, reflects the insights of numerous business leaders who have restructured and downsized their corporations to compete more successfully in a rapidly changing marketplace. These leaders made clear that winning in the new era depends as much on speed and agility as on overpowering mass. This lesson must be learned not only by our fighting forces, but also by the Department's business force, marching together in step to achieve the inter-locking revolutions of military and business affairs.

As we expressed in the Defense Reform Initiative, the Department of Defense's business processes will be guided in the future by four principles:

- *Reengineering*: Adopting modern business practices to achieve world-class standards of performance.
- *Consolidating*: Streamlining organizations to remove redundancy and maximize synergy.
- *Competing*: Applying market mechanisms to improve quality, reduce costs, and respond to customer needs.
- *Eliminating*: Reducing excess support structures to free resources and focus on core competencies.

Three areas of particular interest to the National Defense Panel were outsourcing and privatization, base closures, and acquisition reform.

This year, the Department of Defense is increasing significantly the number of functions that it will compete. Already, the Military Departments and Defense Agencies announced that they will conduct OMB Circular A-76 competitions involving 34,000 positions. In addition, the Department's components will pursue A-76 competitions for functions involving 30,000 full time equivalents (FTEs) in each of the next four fiscal years, for a total of approximately 150,000 FTEs. This annual effort represents more than a threefold increase over any year in the previous two decades. In addition, DoD continues to pursue public-private competition for depot maintenance work to the full extent allowed by law. The Department is currently reviewing the functions performed by its personnel to identify additional functions that can be made subject to competition.

As recommended in the Defense Reform Initiative and endorsed by the National Defense Panel, the Department will also continue to pursue congressional authorization for two additional rounds of base closures. Our proposal is to conduct these rounds in 2001 and 2005. The relative disparity

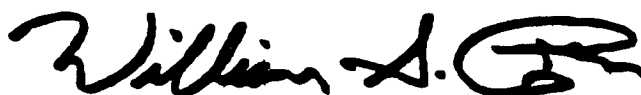
between current base structure and force size wastes limited resources that should be invested in our transformation efforts. Having streamlined the property transfer and environmental cleanup processes, we are now able to reap the savings from base closures more quickly. Indeed, BRAC 95 sites are closing in two-thirds the time it took to close BRAC 88 bases. This improved turn-around time not only benefits taxpayers, it also allows communities to put these properties back to work for them sooner.

The Department agrees with the Panel's belief that our acquisition system must be more agile. The Department has already made significant strides toward this end and is examining ways to shorten the cycle time required to introduce new systems, such as by applying lessons from the ACTD process and by fostering dissimilar competition. We believe that further civil/military industrial base integration will allow the Department to access significantly more commercial products and services in a more timely fashion, as the Panel recommends.

\* \* \* \* \*

Carrying out the wide range of important ideas put forth by the National Defense Panel will require a partnership between the Administration, the Congress, and the American public. We cannot lose sight that the purpose of our military is to credibly deter and if necessary fight and win wars. Our magnificent people and technological capabilities are strengths we must maintain. I look forward to working with the Congress over the coming months to build upon the important recommendations highlighted in this report.

Sincerely,



Enclosure:

1. Selected DoD RMA Transformation Activities Annex
2. Report of the National Defense Panel

## SELECTED DoD RMA TRANSFORMATION ACTIVITIES

This annex describes a selected set of DoD RMA Transformation activities for FY 1997 and FY 1998. While it is not exhaustive, it does describe many of the major categories of activities the Department has undertaken to meet the critical challenges of the future. A more complete description of the Department's activities will be included in the forthcoming *Annual Report to the President and the Congress* and the *Joint Experimentation Plan Report to Congress*.

### LONG-RANGE PLANNING AND CONCEPT DEVELOPMENT

**Joint Vision 2010 Implementation.** *JV 2010* is the conceptual template used to assist the Joint Staff, the CINCs, and Services in channeling the vitality and innovation of their people and leveraging technological opportunities to achieve new levels of effectiveness in joint military operations. *JV 2010* outlines four broad operational concepts that support the Chairman's vision regarding how U.S. military forces should operate in the year 2010: Dominant Maneuver, Precision Engagement, Full Dimensional Protection, and Focused Logistics. These concepts, enabled by Information Superiority and Technological Innovation, will provide our Armed Forces with the ability to conduct highly effective operations across the full range of possible missions, thus yielding Full Spectrum Dominance.

The implementation process for *JV2010* develops and refines operational concepts, conducts concept and capability assessments, and integrates experiment results to support the development of future joint force capabilities. The *Joint Vision 2010 Implementation Plan*, now under development, will provide integrated assessment roadmaps for the aggressive experimentation necessary to determine the right set of future capabilities. Two of the organizing vehicles currently underway are listed below:

- **JV 2010 Coordinating Authorities:** Joint Staff Directors act as the implementation Coordinating Authorities for the key tenets of *JV 2010*: J-4 (Focused Logistics); J-6 (Information Superiority); J-8 (Technological Innovation, Dominant Maneuver, Precision Engagement, Full Dimensional Protection); J-7/JWFC (Full Spectrum Dominance).
- **Joint Warfighting Center (JWFC):** Guides the development and assessment of concepts and capabilities needed for future joint operations. Implementing agent responsible for day-to-day management of *JV 2010* concept development, assessment, and integration. Published the *Concept For Future Joint Operations*, the intellectual foundation for *JV 2010* implementation.

**Service Visions.** Each Service has published a vision defining the strategic goals that will guide their transformation initiatives for the next twelve years. Vision documents also illustrate how each Service supports *Joint Vision 2010* and their contributions to future joint operations.

- **Army:** The central focus of *Army Vision 2010* is the enduring versatility of land forces across the full spectrum of operations while linking the present army to the future vision described by *Force XXI* and the longer-term vision in *Army After Next*. The document emphasizes the decisive contributions of land forces and describes how those forces support the major pillars of *JV 2010*.
- **Navy:** Published in 1992, . . . *From the Sea* focuses on the critical contributions of naval forces in projecting power from the sea in support of joint and combined operations. A follow-on 1994 document titled *Forward . . . From the Sea* expands on the value and role of naval expeditionary forces across the full spectrum of joint military operations. The 1997 Navy Operational Concept provides additional depth to these documents and updates their terminology in view of *JV 2010*.
- **Marine Corps:** As the Department of the Navy's strategic vision, *Forward . . . From The Sea* articulates the Marine Corps role in naval expeditionary force operations in the littorals. Building on this vision, *Operational Maneuver From The Sea* describes the Marine Corps' use of the sea as a maneuver area from which to conduct seamless ship-to-objective operations.
- **Air Force:** *Global Engagement: A Vision for the 21st Century Air Force* is based on the Air Force's understanding of what air and space power means to the Nation – the ability to affect an adversary's strategic, operational, and tactical centers of gravity and prevail throughout the full spectrum of military operations. *Global Engagement* is grounded in *JV 2010* and embodies the Air Force's belief that in the 21st century, the strategic instrument of choice will be air and space power.

**Battle Labs and Warfare Centers.** The Services and the Joint Staff have established Battle Labs and Warfare Centers to develop new concepts and exploit advanced technologies to carry out key military missions. Battle Labs are the DoD's test beds for exploring how 21st century military forces will maximize their effectiveness across the spectrum of operations. Most labs address both near- and long-term planning and concept development. Many are focused on specified critical challenges, with the intent of rapidly developing and testing concepts through experimentation.

- **Joint C4ISR Battle Center (JBC):** Provides combatant commands at the joint task force level with assessments and an experimentation environment. The JBC's Federated Battle Lab Project establishes a distributed, collaborative C4ISR experimentation environment by cyber-space linking Service battle labs with the JBC.

- Army: Space & Missile Defense Battle Lab; Dismounted Battle Space Lab; Mounted Maneuver Battle Space Lab; Battle Command Battle Lab; Depth and Simultaneous Attack Battle Lab; Maneuver Support Battle Lab; Air Maneuver Battle Lab
- Navy: Maritime Battle Center; Navy Doctrine Command; Fleet Information Warfare Center; At-Sea Battle Labs
- Marine Corps: Marine Corps Combat Development Command; Marine Corps Warfighting Lab
- Air Force: Air Expeditionary Force Battlelab; Command & Control/Battle Management Battlelab; Force Protection Battlelab; Information Warfare Battlelab; Space Battlelab; Unmanned Aerial Vehicle Battlelab

**Wargames.** Numerous joint and Service-sponsored wargames are focused on improving understanding of the future security environment and the relative merits of alternative capabilities to meet critical military challenges over the longer term. Wargames are a critical tool for ensuring senior decision-makers, joint force commanders, and their staffs are able to maximize 21st century warfighting capabilities.

- OSD/Net Assessment: Theater Warfare 20xx; Information Wargames; Transformation Games I & II; Command & Control Warfare; Space Warfare
- Army: Army After Next Wargame series; Tactical Wargames 1 and 2; Space Wargame; Army Special Forces Wargame II
- Navy: Navy Global Wargames; Strategic Concept Wargame series; Future Navy RMA Wargame series; Technology Initiatives Wargame series; Sea Based Logistics Wargames
- Marine Corps: Marine Corps RMA Operational Concepts Wargame series, Operational Maneuver From the Sea Wargames, Ship to Objective Maneuver Wargames, Sea-Based Logistics Wargames; Maritime Prepositioning Force 2010 Wargames
- Air Force: Future Air Force RMA Wargame series; Alternative Air Forces Wargame series; Global Engagement Wargame series; Lower End of the Spectrum AF Wargame series

**Joint Mission Area Analyses.** Joint Mission Area Analyses perform end-to-end assessments of key military missions and tasks. Insights gained from the analyses are



used to develop future mission area architectures, develop new organizational and operational concepts, and guide the resource decision-making process.

- OSD Decision Support Center C4ISR Studies
- Command and Control Research Studies
- Joint Theater Air and Missile Defense Organization Studies
- Joint Suppression of Enemy Air Defenses Study
- Deep Attack Weapons Mix Study
- Close Support End-to-End Assessment

**Long-Range Strategic Studies.** Long-range studies typically focus on exploring the impact of emerging security challenges and threats on military capabilities and operations. They serve as the intellectual foundation for developing and assessing: visions of future operating environments; long-range missions, doctrines, operating concepts, and plans; and the challenges/opportunities resulting from emerging technologies.

- OSD/Net Assessment: Future Security Environment; Future Military Balance in Asia; Information Warfare Net Assessment; Precision Strike Net Assessment; Impact of Networks on Military Operations and Organizations; Foreign Country RMA Writings; Chinese Military and Strategic Assessments
- Army: Army Role in Space; Soldier Performance and Personnel Quality; Reserve Component Training; Recruiting High Quality Personnel; Individual Training Strategies; Assumption-Based Planning; Velocity Management; Revolution of Military Logistics; Force XXI; Army After Next
- Navy: . . . From the Sea; Forward . . . From the Sea; Strategies for an Uncertain Future; Revolution in Ship Design; Information Assurance; Future Requirements for Navy Support to the Land Battle; Technology & Future Naval Forces
- Marine Corps: Operational Maneuver From the Sea; Ship to Objective Maneuver; Sea-Based Logistics; Maritime Prepositioning Force 2010 and Beyond; Future of Urban Warfare
- Air Force: Air Expeditionary Force; Rebalancing Power Projection Capabilities; Integrating Air & Space Long-Range Planning/Global Engagement; Lean Logistics

## CONCEPT DEMONSTRATION & TESTING

**Advanced Warfighting Experiments (AWEs).** AWEs are large-scale experiments that demonstrate and test emerging operational concepts and new technologies. They are an integral part of DoD's effort to develop the new organizations, doctrine, training,

leadership, and the operational concepts and capabilities required to fully realize the improvement in joint combat power that constitutes a Revolution in Military Affairs.

- Army: Army Task Force XXI; Army Division XXI
- Navy: Fleet Battle Experiment series
- Marine Corps: Hunter Warrior; Urban Warrior; Capable Warrior
- Air Force: Expeditionary Force Experiment series

**Joint Exercises/Experiments.** The Services and other DoD organizations participate in joint exercises/experiments to better understand and assess new operational concepts and emerging technologies. They play a key role in the demonstration and integration of joint capabilities, doctrine, and warfighting concepts. Selected examples:

- Joint Experiments: All-Service Combat Identification Experimentation team (ASCIET); Joint Warrior Interoperability Demonstrations (JWIDs)
- Joint Exercises: Roving Sands (focuses on joint theater air and missile defense); Unified Endeavor (advanced joint training via the Synthetic Theater of War simulation)

**Joint Test/Evaluation (JT&E).** Overseen by the Office of Test, Systems Engineering and Evaluation, the JT&E program evaluates joint operational concepts and requirements; assesses interoperability, validates system development and testing methods with multi-service applications, and evaluates the performance of systems under realistic operational conditions.

- Joint Test and Evaluations: Joint Theater Missile Defense; Joint Advanced Distributed Simulation; Joint Suppression of Enemy Air Defenses; Joint Combat Search and Rescue; Joint Electronic Combat Using Simulation; Joint Warfighters; Joint Night Close Air Support
- Joint Feasibility Studies: Joint Theater Distribution; Joint Shipboard Helicopter Interoperability Process

**Modeling & Simulation Development.** Current development programs are designed to capitalize on technological advances to improve the modeling and simulation of future operational concepts and military operations that span the spectrum of conflict. Advancements will also yield improvements in training, program assessment, and testing. Major development activities include:

- Joint Simulator System (JSIMS)
- National Air and Space Model (NASM)
- NETWARS (modeling of command and control networks)
- Joint Warfare System (JWARS)

**Training and Education.** All of the Services are seeking to maximize the intellectual agility of their people by developing leaders who can operate effectively in the face of risks and uncertainty. Each Service is actively improving the capacity of its members to identify patterns, seek and select critical information and make good decisions quickly. This "transformation of the mind" is a continual process that originates with entry level training and is refined through Professional Military Education, fellowships, advanced degree and other educational programs and experiences. New approaches to training and education are made possible by technological innovation, including more realistic simulations and distance learning. In addition to cross-Service participation in formal education programs, wargames, experiments, and exercises, the joint training and education opportunities offered by the National Defense University and Service War Colleges play a key role in preparing men and women of the armed forces to meet the critical challenges of the 21st century.

**Science & Technology Investment** The DoD Science and Technology (S&T) program ensures future US forces will have the combat edge provided by superior technology. The focus of the S&T investment is guided through Defense Technology Objectives (DTOs). The Department has established 286 DTOs. 205 of the DTOs support the 10 technology areas found in the *Defense Technology Area Plan (DTAP)*, and 81 DTOs support the 10 Joint Warfighting Capability Objectives found in the *Joint Warfighting Science and Technology Plan (JWSTP)*. Eighty one of the DTAP DTOs also support the JWSTP. Each DTO identifies a specific technology advancement that will be developed or demonstrated, the anticipated date the technology will be available, specific benefits, and funding required to achieve the new technical capability.

- *Joint Warfighting Science and Technology Plan (JWSTP)*: Identifies 10 Joint Warfighting Capability Objectives (JWCs) validated by the Joint Requirements Oversight Council. It presents an integrated approach to the development of technology required to achieve JV 2010. The ten JWCs validated for FY98 include:
  - Information Superiority
  - Precision Force
  - Electronic Combat
  - Military Operations in Urban Terrain
  - Chem/Bio Warfare Defense and Protection and Counter Weapons of Mass Destruction
  - Combat Identification
  - Joint Theater Missile Defense
  - Joint Readiness and Logistics and Sustainment of Strategic Systems
  - Force Projection/Dominant Maneuver
  - Combating Terrorism

- **Defense Technology Area Plan:** Presents the DoD objectives for Applied Research (6.2) and Advanced Technology Development (6.3) for 10 technology areas supporting DoD acquisition plans, Service warfighting capabilities, and the JWSTP.
- **Advanced Concept Technology Demonstrations (ACTDs):** ACTDs are designed to accelerate the application of advanced technology to solve important military problems, resulting in new operational capabilities. They permit the early and inexpensive evaluation of mature advanced technologies before committing to a major acquisition effort. There are currently 36 ACTDs, including 9 new ACTDs approved for FY98: the Joint Biological Remote Early Warning System; Information Assurance; Joint Continuous Strike Environment; Joint Modular Lighterage System; Link 16; Precision Target Identification; Unattended Ground Systems; Theater Precision Strike Operations; and Line-Of-Sight Anti-Tank System.